

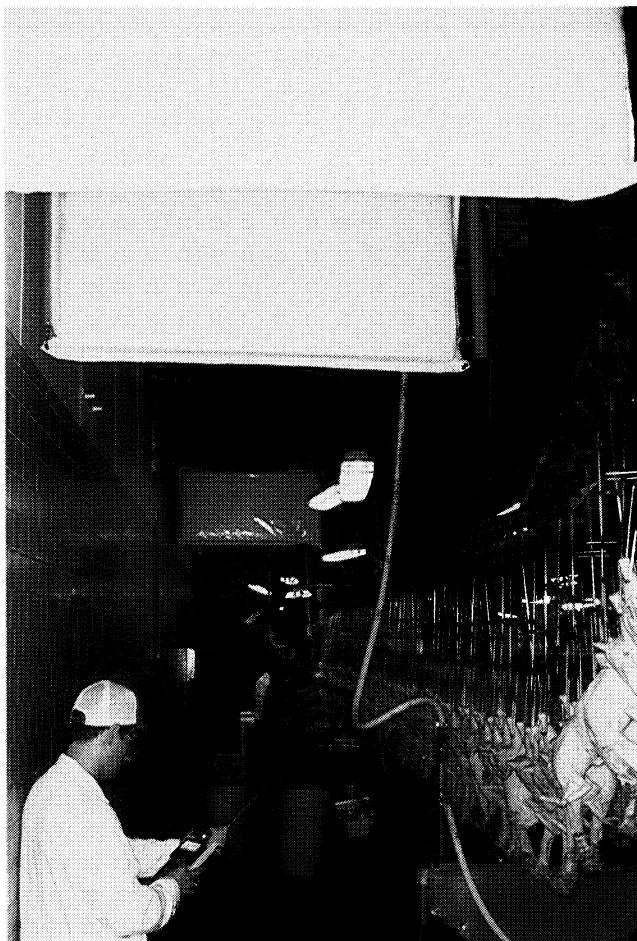


Poultry Plant Noise Control

The plant shown above and at left is Tip Top Poultry, Marietta, Georgia, site of a demonstration program of importance to the poultry processing industry. Conducted last winter, the demonstration was intended to show poultry plant managers from all over the U.S. potential solutions to a problem that has long frustrated the industry: plant noise.

In any industry, high noise levels pose many problems, such as low worker productivity, the risk of hearing damage, high worker turnover rates, and the possibility of fines for failure to comply with federal/state noise statutes. But the poultry industry has a special problem: in order to comply with U.S. Department of Agriculture sanitation regulations, all materials must be washable and must not present an opportunity for bacterial growth. These standards preclude the use of many conventional sound-absorbing materials. Some plants have experimented with specially-designed acoustic panels to absorb noise, but without success; the panels' plastic covers, needed to meet cleanability requirements, are not durable enough to withstand high-pressure water cleaning and other harsh maintenance procedures peculiar to the poultry processing industry.

The Marietta demonstration marked the culmination of a three-year program in which Georgia Tech's Engineering Experiment Station (EES) studied the problem and identified potential solutions. The research was co-sponsored by NASA and the Georgia Department of Agriculture; Lewis Research Center provided sound





and vibration analysis expertise, together with information on aerospace materials which could be applied to reduce noise levels. The EES work included study of noise sources, how noise reverberates through a plant, and what measures might be taken to reduce noise levels. A major part of the research focused on designing a sound-absorbing panel with a cover which could be easily cleaned, was thin enough for desirable acoustic properties yet strong enough to resist puncture and tearing in cleaning and maintenance operations. After studying a variety of materials and designs, EES settled on a design (top) using a tough fiber-reinforced polyester film similar to that used in aerospace applications for vapor protection. The covering encloses a three-inch fiberglass core, shown above. The panels were suspended from ceilings at three-foot intervals to

intercept and absorb noise.

For the full-scale demonstration at Tip Top Poultry, Fiber Flex, Inc., Newark, New Jersey manufactured and donated 750 noise panels; Owens-Corning Fiberglas Corporation, Toledo, Ohio donated the fiberglass cores; and the cover material was purchased from Howe and Bainbridge, Boston, Massachusetts. EES conducted before-and-after noise surveys and is evaluating the effect of noise reduction on turnover and productivity in the demonstration plant. EES plans to conduct a noise abatement workshop and update a handbook to help poultry processors deal with their individual noise problems. The results of the EES study and demonstration are considered applicable to other food processing applications where similar sanitary constraints exist.